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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/364,317	07/30/1999	REINER WAMSSER	10191/1145	9279

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EXAMINER
MASKULINSKI, MICHAEL C

ART UNIT	PAPER NUMBER
2184	19

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)	
	09/364,317	WAMSSER ET AL.	
	Examiner	Art Unit	
	Michael C Maskulinski	2184	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Final Office Action

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 4-8, and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poisner, U.S. Patent 6,012,154, and further in view of Kadnier, Windows NT 4: The Complete Reference.

Referring to claim 1:

a. In column 4, lines 14-26, Poisner discloses a processor, coupled to a host bus, for processing information (controller). In column 2, lines 31-52 and in Figure 2, Poisner discloses an operating system-related software agent running on a processor that is separate from the processor (the stored-program control). However, Poisner doesn't explicitly disclose that the operating system is a real-time operating system. In Chapter 23, Kadnier teaches a real-time operating system. It would have been obvious to one of ordinary skill at the time of the invention to include the real-time operating system of Kadnier into the system of Poisner. A person of ordinary skill in the art would have been motivated to make the modification because in order for the invention of Poisner to be used in a time-critical environment the use of a real-time operating system would be necessary. For example in *Nuclear power/energy plant control: Critical control processes that depend on fail-safe response to external events. The computer*

systems controlling these processes must not only respond correctly, but must do so every time (see Kadnier, Chapter 23, section **Initial User Direction and Input**).

b. In column 4, lines 36-41, Poisner discloses an expansion bus bridge that couples the host bridge to an expansion bus (bus system). Devices (peripheral devices) coupled to the expansion bus include a display device, an alphanumeric input device, a BIOS read-only memory, and an information storage device for storing information including an operating system and applications. Further, in column 2, lines 31-52, Poisner discloses that the invention solves the problem of detecting and recovering from computer system malfunctions. A timer is set upon starting the computer. An operating system related software agent running on a processor periodically resets the timer. If the timer expires, an interrupt is generated which causes the processor to execute an interrupt handler, which is unrelated to the operating system. The interrupt includes a PCI interrupt (the stored-program control exchanging data, via a bus system, with a peripheral to be controlled).

c. In column 3, lines 32-40, Poisner discloses an interrupt handler stored in non-operating system memory space (memory with safety-relevant data stored on it).

Referring to claim 2, in column 4 lines 60-67 continued in column 5 lines 1-9, Poisner discloses a timer (monitor) which is periodically reset with the value stored in register (wake-up signal) by the software agent (stored-program control).

Referring to claims 4 and 10, in column 2, lines 31-52, Poisner discloses that if the timer does expire (function of wake-up signal), an interrupt is generated. The generated interrupt causes the processor to execute an interrupt handler. The interrupt handler attempts to investigate and cure any system malfunction that resulted in the timer expiring. One such interrupt it attempts to correct is Peripheral Component Interconnect interrupts. This involves data exchange with the expansion bus (bus system) and its inherent bus controller because the peripherals are connected to the expansion bus.

Referring to claims 5 and 11, in column 4, lines 36-41, Poisner discloses an alphanumeric input (control signal) connected to an expansion bus (interface), which is in turn connected to the host bus. In column 4, lines 14-26, Poisner discloses that the host bus is used for communicating information, such as instructions and data. Further, attached to the host bus are the processor (controller) and the software agent (stored-program control).

Referring to claim 6, in column 3, lines 32-40, Poisner discloses an interrupt handler (real-time controller) that is executed by the processor (controller) to investigate and cure malfunctions (see Poisner: column 1, lines 26-33). In order for the interrupt handler to investigate and cure software malfunctions, a data exchange must occur between the processor (controller) and the software agent (stored program control) via a host bus (bus system) (see Poisner, figure 2).

Referring to claims 7, 12, and 14, placing at least the controller, the memory, the monitor, and the interface of the safety device on a circuit board is inherent to a device with components such as memories, controllers, watchdog timers, and buses.

Referring to claim 8:

a. In column 4, lines 14-26, Poisner discloses a processor, coupled to a host bus, for processing information (controller). In column 2, lines 31-52 and in Figure 2, Poisner discloses an operating system-related software agent running on a processor that is separate from the processor (the stored-program control). However, Poisner doesn't explicitly disclose that the operating system is a real-time operating system. In Chapter 23, Kadnier teaches a real-time operating system. It would have been obvious to one of ordinary skill at the time of the invention to include the real-time operating system of Kadnier into the system of Poisner. A person of ordinary skill in the art would have been motivated to make the modification because in order for the invention of Poisner to be used in a time-critical environment the use of a real-time operating system would be necessary. For example in *Nuclear power/energy plant control: Critical control processes that depend on fail-safe response to external events. The computer systems controlling these processes must not only respond correctly, but must do so every time* (see Kadnier, Chapter 23, section **Initial User Direction and Input**).

b. Further, in column 4, lines 36-41, Poisner discloses an expansion bus bridge that couples the host bridge to an expansion bus (bus system). Devices

(peripheral devices) coupled to the expansion bus include a display device, an alphanumeric input device, a BIOS read-only memory, and an information storage device for storing information including an operating system and applications. Further, in column 2, lines 31-52, Poisner discloses that the invention solves the problem of detecting and recovering from computer system malfunctions. A timer is set upon starting the computer. An operating system related software agent running on a processor periodically resets the timer. If the timer expires, an interrupt is generated which causes the processor to execute an interrupt handler, which is unrelated to the operating system. The interrupt includes a PCI interrupt (the stored-program control exchanging data, via a bus system, with a peripheral to be controlled).

c. In column 4 lines 60-67 continued in column 5 lines 1-9, Poisner discloses a timer (monitor) which is periodically reset with the value stored in register (wake-up signal) by the software agent (stored-program control).

Referring to claim 13:

a. In column 4, lines 14-26, Poisner discloses a processor, coupled to a host bus, for processing information (controller). In column 2, lines 31-52 and in Figure 2, Poisner discloses an operating system-related software agent running on a processor that is separate from the processor (the stored-program control). However, Poisner doesn't explicitly disclose that the operating system is a real-time operating system. In Chapter 23, Kadnier teaches a real-time operating system. It would have been obvious to one of ordinary skill at the time of the

invention to include the real-time operating system of Kadnier into the system of Poisner. A person of ordinary skill in the art would have been motivated to make the modification because in order for the invention of Poisner to be used in a time-critical environment the use of a real-time operating system would be necessary. For example in *Nuclear power/energy plant control: Critical control processes that depend on fail-safe response to external events. The computer systems controlling these processes must not only respond correctly, but must do so every time* (see Kadnier, Chapter 23, section **Initial User Direction and Input**).

b. Further, in column 4, lines 36-41, Poisner discloses an expansion bus bridge that couples the host bridge to an expansion bus (bus system). Devices (peripheral devices) coupled to the expansion bus include a display device, an alphanumeric input device, a BIOS read-only memory, and an information storage device for storing information including an operating system and applications. In column 4, lines 36-41, Poisner discloses an alphanumeric input (control signal) connected to an expansion bus (interface), which is in turn connected to the host bus. In column 4, lines 14-26, Poisner discloses that the host bus is used for communicating information, such as instructions and data. Further, attached to the host bus are the processor (controller) and the software agent (stored-program control). Further, in column 2, lines 31-52, Poisner discloses that the invention solves the problem of detecting and recovering from computer system malfunctions. A timer is set upon starting the computer. An

operating system related software agent running on a processor periodically resets the timer. If the timer expires, an interrupt is generated which causes the processor to execute an interrupt handler, which is unrelated to the operating system. The interrupt includes a PCI interrupt (the stored-program control exchanging data, via a bus system, with a peripheral to be controlled).

3. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poisner, U.S. Patent 6,012,154, and further in view of Kadnier, Windows NT 4: The Complete Reference.

Referring to claims 3 and 9, in column 2, lines 2-9, Poisner discloses generating an interrupt when the timer runs out. This interrupt is handled by the interrupt handler, which is internal to the system. Poisner never explicitly discloses providing an output signal displaying the interrupt. The examiner takes Official Notice that in the art of error detecting and displaying it is well known in the art to display the error (operability) in the system (stored-program control). It would have been obvious to one of ordinary skill at the time of the invention to include an output signal displaying the interrupt into the system of Poisner. A person of ordinary skill in the art would have been motivated to make the modification because in column 4, lines 1-13, Poisner discloses that the steps of loading the timer, periodically resetting the timer during the boot process and while attempting to cure the malfunction, and performing a more complete system reset can be repeated any number of times. Each time the timer expires, more severe actions can be performed in order to attempt to cure the malfunction. The most severe action might include powering down and then powering up the system. This last action usually

requires user interaction with the system, therefore there must be an output signal displaying the interrupt to the user.

Response to Arguments

4. Applicant's arguments filed July 14, 2003 have been fully considered but they are not persuasive.

5. On page, under the section Remarks, the Applicant argues, "However, neither the software agent nor the interrupt handler disclosed in Poisner **exchanges data with a peripheral to be controlled** (emphasis added by Applicant). While Figure 2 of Poisner refers to peripheral devices located across an expansion bus bridge such as a display device and an input device, there is no mention of the software agent or interrupt handler exchanging data with these devices. In particular, there is no indication that the software agent or the interrupt handler can retrieve or transmit data to the peripheral devices during an operating system malfunction." The Examiner respectfully disagrees. First, the Examiner would like to note that Figures 1 and 2 in the Applicant's specification explicitly shows that the stored program control does not directly with the peripherals but rather communicates with a controller that communicates with the peripherals. This contradicts what is claimed and what is disclosed on page 4, lines 22-28 of the Applicant's specification. Second, in column 2, lines 31-53, Poisner discloses that the interrupts include PCI interrupts. PCI interrupts mean that the interrupt handler and the software agent have to communicate with the peripherals. Further, in column 3, lines 20-21, Poisner discloses that other malfunctions are possible including the operating system waiting for a misbehaving peripheral. Still

further, in column 3, lines 36-40, Poisner discloses that the interrupt handler attempts to investigate and cure the malfunction that allowed the timer to expire. It is possible for the interrupt handler to attempt to cure a broad range of possible system malfunctions. For these reasons, the Examiner maintains that the interrupt handler and software agent communicate with the peripherals.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C Maskulinski whose telephone number is (703) 308-6674. The examiner can normally be reached on Mon-Thu 7:30-5 and Fri. 7:30-4 (second Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703) 305-9713. The fax phone

number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

MM

ROBERT BEAUSOLIEL
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